Appendix B--Distinguishing Functions of Central Places in Madison Hinterland

Fifth-Order	Fourth-Order	Third-Order
Post Office	Common Meeting House	County Offices
General Store	Common School	Church
Tavern	Benevolent Society	Public Library
	Printing Office	High School
Fulling Mill		Female Academy
Tannery	Grocery Store	
Carding Machine	Drug Store	Merchant Mill
Grist Mill	Clothing Store	Distillery
Saw Mill	Liquor Store	Oil Mill
	Iron Store	Ashery
Blacksmith		Tobacco Manufacture
Carpenter	Tobacconist	
Hatter	Gunsmith	Spinning Mill
Tailor	Saddler	Woolen Mill
Wagoner	Bricklayer	Cotton Mill
Shoemaker	House Joiner	Tin and Copper Mfg.
	Stone Mason	Iron Foundry
	Brick Maker	
1860	Wheelwright	Watch Maker
	Millwright	Brass Clock Maker
Church	Plasterer	Silversmith
	Tinner	
Resident Farmer	Cooper	
	Potter	1833
	Weaver	
	Painter	Teacher
	Pump Maker	Building Contractor
	Plough Maker	Justice of the Peace
	Chair Maker	
	Butcher	
	Coppersmith	1860
	Lawyer	Weekly Newspaper
	Physician	
		Lyceum Association
	1860	Pork Packing
	Shingle-Maker	
	Dressmaker	
	Preacher	Carriage Manufacture
	Teacher	Furniture Manufacture
	Lumber Yard	

Appendix B--continued

Second-Order	First-Order
Silk Manufacture	Bank
Paper Mill	Steamboat Building Boatyard
Pork Packing	
	State Offices
Market House	College
Weekly Newspaper	
	1833
1833	
	Warehouse
Engine Manufacture	Wholesale Merchant
Ship Chandlery	Commission Merchant
Ropewalk	Insurance Company
Brass Foundry	
	1860
1860	
	Iron Rolling Mill
	Paint Manufacture
Edge Tool Manufacture	Iron and Steel Warehouse
Steam Engine Manufacture	Commercial College
Agricultural Machinery Mfg.	Female College
Boiler Manufacture	
Bookbinder	Daily Newspapers
Soap and Candle Manufacture	Engraver
Marble Quarry	
Limestone Quarry	Optician
Lard Oil Manufacture	Surgeon
	Homeopathic Physician
Warehouse	
Wholesale Merchant	
Commission Merchant	
Bank	
Insurance Company	
College	

Source: John Scott, The Indiana Gazetteer (Centerville, 1826); The Indiana Gazetteer, or Topographical Dictionary (second edition, Indianapolis, 1833); and George W. Hawes, Indiana State Gazetteer and Business Directory for 1860 and 1861 (Indianapolis, 1860).

Chapter Four: Paddle Wheels and Iron Rails

The pristine land of southeastern Indiana needed much in the way of men and material to become commercially productive. Madison's location made it a natural entrepot for the assembling of the necessary labor and products. In 1811 Madison lay about two days down-river by keelboat from Cincinnati, and Louisville one day from Madison.[1] Given the fact that Cincinnati had a population almost exactly twice that of Louisville in 1810 (2,540 versus 1,357)[2] Madison's location appears as the functional limit of the influence of the two communities, and the ideal location for an intermediate river port with the object of serving as a major entrepot for the Indiana Territory. From the beginning, town boosters trumpeted the fact that

> Any person who will take the trouble to examine the maps, will discover, that Madison is several miles nearer the line of the [New] purchase than any other place on the Ohio River. And it will not require more than ordinary penetration to discover, that this circumstance, together with other advantages, such as the healthiness of Madison, the superior ground for roads from this place to the purchase, and the means of accommodation for emigrants, render this place the most safe, convenient, least expensive, and finally, on almost every account the most advantageous point for emigrants to land, who intend settling on the new purchase.[3]

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[1]Cramer, The Navigator, 21. Cramer reports the average time for a keelboat to travel the 587 miles from Pittsburgh to Louisville as fifteen days. Hence, about 40 miles represents the average day's travel, and at this time Madison lay 86 miles below Cincinnati and 43 miles above Louisville.

[2]U. S., Third Census, 1810.

[3]Madison Indiana Republican, October 9, 1819.

In its early years from 1811 to 1830, the town served primarily as a gateway through which emigrants and goods moved from the Ohio River into the hinterland. A number of Madison's citizens, including Israel T. Canby, John Sering, Nathan B. Palmer, and Henry Ristine, demonstrated an early awareness of the town's importance as a gateway and the need for improvement of the hinterland, if the town were to grow. In October 1819 they formed an Emigrant Society to advance the "prosperity of Madison."[4] Palmer opened an office for the society in March 1820 which provided books, maps, surveys, entries, and all manner of benefit and convenience to the emigrant. Most important, the society maintained a register of lands available for sale or property to rent that "persons at a distance" could learn of "by addressing letters, post paid to N. B. Palmer."[5]

It is uncertain how much the emigrant society and a similar Land Agency Office, opened by W. C. Enos, promoted migration. A notice by Enos in May 1820 announced that a number of emigrants had arrived in Madison, who were anxious to make purchases of improved land in Jefferson and adjoining counties. These settlers, Enos reported, brought with them "specie and United States' paper," for the payment of "all contracts entered into," which further aided the prosperity of Madison.[6] Between 1820 and 1830 the population of the counties in Madison's hinterland (Figure 1, Chapter 1) increased from 88,019 to 207,842.[7] Many early settlers came by flatboat

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[4]Madison Indiana Republican, October 16, 1819.

[5]Ibid., March 2, 1820.

[6]Ibid., May 18, 1820.

[7]U. S., Fourth Census, 1820; Fifth Census, 1830.

on the spring and fall rises of the river and probably entered Indiana through Madison. Prior to 1827, the year the survey of the National Road in Indiana was finished, Madison offered settlers entering Indiana from the east and the Ohio River the most direct and least difficult to traverse route to Indianapolis and the central portion of the state (Figure 2, Chapter 1 and Figure 1, Chapter 3).[8]

In these early years few trails or roads crossed Indiana from east to west and the main route of travel for emigrants and goods was down the Ohio River by flat and keelboats from either Pittsburgh or Wheeling.[9] Flatboats, which were the most common mode of travel on the river prior to 1830, were small, ranging from 25 to 100 tons in size, limited to the spring and fall seasons of high water because of their deep draft, and dangerous.[10] They were not so much boats as "great clumsy boxes" difficult to keep clear of obstructions that abounded in the river and slow to respond in crisis. The log of one flatboat journey down the Ohio from Wheeling to Louisville reported for one day in the autumn of 1818: "Clear and moderate, we ran on to three or four piles of rocks; I thought we should be dashed to pieces also ran afoul of a keel boat, but with all, but little damage. P. M. We took the wrong side of a bar, got aground the men got out into the river and lifted but could not start us."[11] Such obstructions as these caused

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[8]While the direct land distance between Madison and Indianapolis (86 miles) amounted to only 3 miles less than from Lawrenceburg to Indianapolis (89 miles), the terrain travelers had to cross to reach the capital from the two river ports differed considerably.

[9]Wilson, Early Indiana Trails and Surveys, 352-53.

[10]Hunter, Steamboats on the Western Rivers, 54, 60.

[11]Diary quotation in Archer B. Hulbert, Waterways of Westward Expansion: The Ohio River and Its Tributaries (Cleveland, Ohio, 1903), 261.

Louis Hunter to write that flatboat operation was "as hazardous an occupation as any in the West," and many "were the men who lost their lives in guiding their unwieldy craft on the swirling swollen waters of the western rivers."[12]

The whirling eddies, treacherous shoals, and lurking logs and snags that made flatboat travel so risky, restricted the cargoes carried. Shippers for the most part limited flatboat cargoes to the bulk products of the farm, certain barreled products like pork and flour, semi-manufactured products as lumber, pig metal, and salt, and heavy manufactured products such as foundry castings.[13] For merchandise, shippers generally preferred the safer, more expensive keelboat and steamboat. Restrictions on the types of cargoes carried on flatboats and the expense of shipping merchandise probably accounts for Madison's inability to provide the diversity of goods needed to compete with Cincinnati and Louisville for buyers from the interior portion of the state. "It is well known that merchants in the interior," said the Indiana Republican in 1831, "as well as many farmers, have formerly procured their goods at Cincinnati and Louisville. The reason for this was, that, until recently, a general assortment could not be procured at this place."[14]

The slow development of Madison's river front reflected the city's early dependence on the older types of water craft. In 1815 the settlement had no landing of any kind. "The original sycamore, cottonwood, and

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[12]Hunter, Steamboats on the Western Rivers, 271.

[13]Ibid., 54-55.

[14]Madison Indiana Republican, April 21, 1831.

willow trees," wrote an early settler, "were standing under and on the high bank; these grew out into the river, especially the cottonwoods."[15] A contributor to the Indiana Republican complained in 1817 that the natural forest "so completely prevents a view of the town, to persons who are descending the river that many pass it before they are appraised of it;--or a view of the town breaks upon them so suddenly, that they cannot possibly effect a landing, particularly when the waters are high."[16] Even as late as 1833 so many trees still extended over the river front that from the river the passing traveler had only an imperfect view of the town.[17] The extensive clearing and development of the river front characteristic of Madison in its later years came with the increase of steamboat commerce on the river, and the resultant decrease in freight rates.

Steamboat commerce matured slowly in the two decades following the demonstration by the New Orleans in 1811 of the feasibility of navigation on the Ohio River. Among the more tangible factors for this delay was the hesitation on the part of many businessmen, particularly after the Panic of 1819, to risk capital in the new enterprise. "They satisfied themselves," wrote James Hall, "that although the benefits conferred on the country by steam navigation were incalculable, the stock invested in boats, was as a general rule, a losing investment."[18] Since steamboats

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[15]Reminiscences of James B. Lewis, "The Pioneers of Jefferson County," Indiana Magazine of History, XII (Sept. 1916), 215.

[16]Madison Indiana Republican, December 20, 1817.

[17]Indiana Gazetteer (1833), 111.

[18]James Hall, Notes on the Western States (Philadelphia, 1838), 240.

themselves did not materially contribute to the increase of agricultural production, feeder lines, roads, canals, and improved rivers, had first to be completed or at least much advanced before entrepreneurs could be attracted to large scale investment.[19] The sharp increase in steamboat operation on western rivers from 1830 onward (Table I) suggests development of feeder lines had advanced to the point of attracting large scale investment in steamboats by that date.

Progress in design and construction of steamboats that enabled them to operate economically, also took several decades. Advance can be noted by comparing the tonnage measurement of the early steamboats (cubic capacity, representing the vessel's burden) with their cargo capacity. The first steamboats were so heavily constructed and equipped that builders consumed much of the boat's buoyancy in supporting the weight of vessel and machinery. The ratio of cargo capacity to tonnage measurement in such pioneers as the Aetna (360 tons) and Washington (403 tons), built in 1815 and 1816 respectively, average about one to two. By 1825 steamboats had a reported capacity of one ton of cargo to each measurement ton; by 1840, a ratio of one and one-half tons of cargo capacity to each measurement ton; and in the late forties occasionally a ratio of two to one.[20]

The advances in steamboat design meant that Madison was hours, rather than days, away from Louisville and Cincinnati. In 1811 the New Orleans moved at "the marvelous rate of nearly eight miles an hours," down-river.[21]

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[19]Clark, The Grain Trade in the Old Northwest, 15; Ambler, A History of Transportation, 163-70.

[20]Hunter, Steamboats on the Western Rivers, 34, 82-83.

[21]Arthur Butler Hulbert, The Ohio River: A Course of Empire (New York, 1906), 331.

Travel up-river remained agonizingly slow. In 1815 a steamboat passenger embarked for Cincinnati at Rising Sun, 35 miles below, and "such was the slow speed of the steamer, that when he got to North Bend he left the boat and walked to Cincinnati, arriving some twelve hours before the steamer."[22] Even as late as 1823 it required two days and nights for a steamboat to move up-river to Cincinnati from Vevay, 23 miles above Madison.[23] But by 1834, improvements in steamboat design had reduced the time from New Orleans to Louisville from 25 days to seven days and eighteen hours.[24] In 1851 the Madison Daily Tribune reported the "Time of the Telegraph [a steamboat] this day, from Louisville to the wharf at Madison was three hours and thirty-nine minutes, the quickest time ever made."[25] By bringing the important cities of Cincinnati and Louisville, as well as eastern and southern commercial centers, closer to the inland settlements of Madison's hinterland, the compression of river space by the advances in steamboat design favored the growth of Madison.

The advance in carrying capacity and speed of steamboats helped bring a steady decrease in freight rates. The down-river rate for goods shipped from Pittsburgh to Louisville declined from $1.00 per hundred pounds in 1817 to 30 cents in 1833 and as low as eight to ten cents per hundred

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[22]Rev. Benjamin Franklin Morris, Historical Sketch of Rising Sun, Indiana...Delivered Sept. 15, 1856 (Cincinnati, 1858), 15.

[23]Perret Dufour, "The Swiss Colony that First Settled Vevay," Vevay Democrat, c. 1856 (Scrapbook of Articles in Lilly Library, Indiana University, Bloomington).

[24]Ambler, A History of Transportation, 158.

[25]Madison Daily Tribune, July 29, 1851.

pounds for heavy goods in 1842. Up-river steamboat rates declined similarly. In 1816 freight rates from New Orleans to Louisville were $4.00 to $5.00 per hundred pounds. In the early eighteen thirties, following the opening of the Louisville and Portland Canal, rates were 62½ cents per hundred pounds from New Orleans to St. Louis, Louisville, and Cincinnati. In the winter of 1842-1843 a meeting of steamboatmen at New Orleans fixed rates for the trade from New Orleans to Louisville and Cincinnati at 25 cents per hundred pounds for heavy goods and 33 1/3 cents for groceries and merchandise.[26] The steamboat had so equalized the freight rates for Madison by 1831 that the Indiana Republican could report that goods could now be procured "on as good terms...here as at Cincinnati or Louisville."[27] The Indiana Gazetteer reported in 1833 that "within the months of March and April last, an amount not less than $120,000 in merchandise, was imported to this town [Madison], which was chiefly sold to country merchants at wholesale, on terms as fair as could be had at Cincinnati or Louisville."[28]

Thus, the transition of Madison from an entrepot to a trade center competing with Cincinnati and Louisville paralleled the increase of steamboats on western rivers. As Table I indicates, only 69 steamboats with a measured tonnage of 13,890 tons operated on all the western rivers in 1820.

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[26]Hunter, Steamboats on the Western Rivers, 25-27; Thomas S. Berry has also concluded that freight rates generally declined from 1815 to 1843 but drifted slowly upward thereafter. Western Prices Before 1861, 43-65; James Mak and Gary M. Walton, "Steamboats and the Great Productivity Surge in River Transportation," The Journal of Economic History, XXXII (September 1972), 619-40.

[27]Madison Indiana Republican, April 21, 1831.

[28]Indiana Gazetteer (1833), 111.

Table I. Number and Tonnage of Steamboats Operating on the Western Rivers, 1817-1860.

Year	Number	Tonnage	Year	Number	Tonnage
			1836	381	57,090
1817	17	3,290	1840	536	83,592
1820	69	13,890	1845	557	98,246
1823	75	12,501	1850	740	141,834
1825	73	9,992	1855	727	173,068
1830	187	29,481	1860	735	162,735

Source: Louis C. Hunter, Steamboats on the Western Rivers (Cambridge, 1949), 33.

Only one of these, a small boat of 176 tons with a cargo capacity of perhaps no more than 90 tons, ran with any degree of regularity between Cincinnati and Louisville. The number of steamboats on the western rivers remained fairly constant from 1820 through 1825, then more than doubled to 187 in 1830. The eighteen thirties brought the greatest boom in steamboat construction of the antebellum period, the number of boats increasing to 381 in 1836, and 536 by 1840. Their number on western rivers reached its height in 1850 and thereafter declined, but not the measured tonnage. The packet, Jacob Strader, built in 1853 to ply between Cincinnati and Louisville, floated 905 measured tons with a carrying capacity perhaps twice that much.[29]

Prior to 1830, only two steamboats ran on a fairly regular schedule between Cincinnati and Louisville--the General Pike (1818-1825) and the Ben Franklin (1826-1833).[30] The General Pike (176 tons) was a small boat,

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[29]Hunter, Steamboats on the Western Rivers, 69.

[30]Jonathan H. Barker to Captain E. W. Gould, November 28, 1888, in Emerson W. Gould, Fifty Years on the Mississippi, or Gould's History of River Navigation (St. Louis, 1889), 337.

149 feet long and had a 24 feet beam, with a six-foot hold. It had two high pressure engines and "her water wheel was behind and worked in a recess in the hull." The boat had a speed of three or four miles an hour up stream in a gentle current but in a strong current appeared to "sleep in the water."[31] The Cincinnati and Louisville Mail Line, which operated the General Pike, was the first steam packet company for which any record has been found. The Ben Franklin (163 tons) replaced the General Pike and commenced running between Cincinnati and Louisville in 1826, "not on regular days but as often as required." Before the canal around the Falls at Louisville opened in December 1830, the Ben Franklin would load at Cincinnati with produce and reship at Louisville, wait at the latter city until an arrival of a New Orleans boat, then load for a return trip.[32] The General Pike and Ben Franklin made "intermediate" stops between Cincinnati and Louisville, discharging and receiving passengers and freight where required, that doubtless included Madison.

Other steamboats, which probably made stops at Madison, navigated between Louisville and Cincinnati. As early as February 1820 the Indiana Republican reported "Steamboats and boats of all descriptions are now daily passing."[33] The Uncle Sam (468 tons), "said to be the largest and most elegant boat on the Ohio and Mississippi," passed Madison bound for Pittsburgh in April 1830.[34] The frequent references in the Madison paper

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[31]Reminiscence of Captain John Armstrong, Madison Evening Courier, March 13, 1877.

[32]Gould, Fifty Years on the Mississippi, 337.

[33]Madison Indiana Republican, February 17, 1820.

[34]Ibid., April 1, 1830.

during those early years to steamboats "passing" rather than "stopping" may have been merely a semantic idyosyncracy of the editor but even the regular boats between Cincinnati and Louisville did not always stop during these early years. "The beautiful Steam Boat, Gen. Pike," reported the Indiana Republican in 1819, "passed this place yesterday from Louisville, bound to Cincinnati."[35]

The earliest known regular steamboat trade from Madison developed in the 1830s between that port and New Orleans. In 1834 the steamboat Champion (195 tons), owned by John Woodburn, began to ply on a monthly basis between Madison and New Orleans.[36] By then Madison's export commerce had apparently developed sufficiently to support the running of at least one steamboat regularly between these points. In 1842, the Weekly Courier reported that the American Eagle (295 tons) and in 1845, that the Alice Gray (267 tons) were running on a similar schedule between the two ports.[37] By 1850 this commerce had so expanded that David White chartered the steamer Hungarian (276 tons) to make a single trip with "some $50,000 worth of produce" to New Orleans.[38]

The development of direct commerce between Madison and New Orleans preceeded by several years scheduled trade between Madison and either Cincinnati or Louisville. The Madison Republican and Banner reported in 1837 that the steamboat Argo (84 tons) would begin to "ply regularly between

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[35] Ibid., March 13, 1819.

[36] Madison Republican and Banner, February 27, 1834.

[37] Madison Weekly Courier, March 12, 1842; October 18, 1845.

[38] Madison Daily Courier, August 26, 1850.

this place and Louisville, during the season, leaving each place every other day alternately at 3 o'clock."[39] Although no announcement of similar trade with Cincinnati has been found in the Madison paper, such trade may also have begun with that port in 1837. If it had, however, the depression of 1839-1843 apparently interrupted the nascent commerce with the Ohio port, for in 1845 the Weekly Courier announced, "It is now only a little more than a year since the 'Fashion' [110 tons, whose home port was Cincinnati] quite a small boat, deemed it hardly worth the trouble to extend her trips from Carrollton to this place, so limited was the business in shipping upward from this place."[40] The depression may also have interrupted trade with Louisville. The Weekly Courier stated in 1845, "When the steamboat Cutter [148 tons], was started as a packet in the trade between this port and Louisville, a few weeks since, we heard not a few doubts expressed about the propriety of the undertaking. Many persons believed that the trade was not sufficient to sustain her; but the facts now prove that their fears were groundless."[41] In justifying the packet to Louisville, the Weekly Courier reported that the Cutter "took away this port, 400 bbls Pork, 350 bbls Flour, 300 kegs Lard, 28 bales Hay, 10 dz. Chairs, and several smaller lots of freight, making quite a respectable trip for either St. Louis or New Orleans."[42]

The increase in the number and measured tonnage of steamboats in

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[39] Madison Republican and Banner, May 17, 1837.

[40] Madison Weekly Courier, November 29, 1845.

[41] Ibid.

[42] Ibid.

regular service to Madison suggests a gradual expansion of trade in the 1830s beginning with the regular direct New Orleans trade in 1834. This trade expanded, measured by the tonnage of the American Eagle, during the depression of 1839 to 1843. Madison's Cincinnati and Louisville trade, unable to support regular packets through the depression, did not become sufficient for that purpose until the middle years of the 1840s. Daily packet service between Madison and Cincinnati and Madison and Louisville apparently did not develop until 1847 and 1849 respectively. In 1847 the John Drennon (131 tons) and the Swiftsure, No. 4 (141 tons) began daily runs between Madison and Cincinnati.[43] Two years later the Swiftsure, No. 4 was replaced in the Cincinnati trade by the Madison Belle (160 tons) and transferred to the Madison and Louisville trade along with the Lewis Wetzel (118 tons) to form daily service between the two ports.[44]

Madison's steamboat commerce continued to increase from the middle forties into the early 1850s, and its river front, as one observer described it, became a veritable symphony of motion. Arrival and departure of the scheduled packets, and the continual landing of boats of all sorts "from a 'broadhorn' to a magnificant Mississippi 'floating palace,'" together with the coming and going of locomotives with their trains, and the "dashing to and fro of the drays, omnibuses, water-carts and other two and four wheeled vehicles" made Madison a center of activity orchestrated by commerce.[45] On one day in the spring of 1851, ten steamboats--St. Anthony

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[43] Ibid., August 7, 1847.

[44] Madison Daily Courier, November 27, 1849.

[45] Ibid., November 6, 1850.

(184 tons), Sea Gull (149 tons), Regulator (155 tons), Hoosier State (343 tons), Blue Wing (170 tons), Navigator (154 tons), Yorktown No. 2 (298 tons), Mary Stephens (229 tons), Ben Franklin No. 8 (473 tons), and Telegraph No. 2 (375 tons)--stood at Madison's several wharfs receiving and discharging passengers and freight.[46]

Down to the time of the railroad both men and goods moved more slowly on land than on water. Scattered reports suggest that men and wagons traveled at less than three miles an hour on America's primitive roads with an average day's travel of 25 or 26 miles being the general rule.[47] Even as late as 1841, the 86 miles to Indianapolis from Madison required a two-day journey, as indicated by the schedule of the United States mail coaches: "Leave Madison on Mondays, Wednesdays & Fridays; arrive at Columbus by 6 P. M.; leave next morning and arrive at Indianapolis at 6 o'clock P. M."[48] A decade later the schedule of the Madison and Indianapolis Railroad was very different: "Leaves Indianapolis at half-past 8 o'clock, A. M., arrives at Madison at 40 minutes past 1 o'clock, P. M."[49] Railroad technology had reduced the two-day journey

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[46]Madison Daily Tribune, April 16, 1851.

[47]F. A. Michaux, Travels to the West of the Alleghany Mountains, Reuben Gold Thwaites, ed., Early Western Travels 1748-1846, III (Cleveland, Ohio, 1904), 142, 158, 202, 240; F. Cuming, Sketches of a Tour to the Western Country, Thwaites, ed., Western Travels, IV, 25, 202, 207; Thomas Nuttal, A Journal of Travels into the Arkansas Territory, Thwaites, ed., Western Travels, XIII, 36.

[48]Madison Weekly Courier, December 11, 1841.

[49]Madison Daily Tribune, November 7, 1851; The Indianapolis Indiana Sentinel, April 28, 1851, reported a slightly faster time for the summer schedule: "Leaves daily, except Sunday, at 8¼, A. M. Arrives every day, except Sunday, at 12½ o'clock M."

to just over five hours, or about seventeen miles an hour, about equal to the average down-river speed of steamboats. No wonder then that the Vermont poet, John G. Saxe, expressing the sentiments of many a weary traveler, could write:

Singing through the forest,
Rattling over ridges,
Shooting under arches,
Rumbling over bridges,
Whizzing through the mountains,
Buzzing o'er the vale--
Bless me:--this is pleasant
Riding on a rail.[50]

Most steamboatmen and many others had not considered the railroad a serious rival prior to the 1850s. They thought of it not as a competitor but as a feeder to the trunk routes of the Ohio and Mississippi rivers. Even the American Railroad Journal reflected this view in 1850 when it wrote, "No artificial highway is likely to compete with the Father of Waters; for even with every facility for making railroads, it is not probable that the western people can ever reduce freights on their roads to less than 1 cent per ton per mile."[51] Such views did not take into account the importance that time and reliability were coming to play in railroad transportation. By January 1854 the Ohio and Mississippi Railroad, via Seymour, established rail connections between Cincinnati and Jeffersonville opposite Louisville. Financial difficulties delayed completion of the road to St. Louis, its terminal point, until 1857, when the final section of track between Vincinnes and Mitchell, Indiana, was

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[50]Quoted in Madison Weekly Courier, September 18, 1847.

[51]Steamboats then carried freight at an average rate of 4 mills per ton per mile. American Railroad Journal, VI (May 4, 1850), 274.

built. Completion of the Indiana portion of the road provided a railroad line from Baltimore to St. Louis.[52] By the mid-fifties Ohio River steamboats confronted fast, reliable, and direct main-line competition on the entire length of the river. Within a few years the railroad had "relegated steamboats to a minor role in the economic life of the West."[53]

The building and operation of the Madison and Indianapolis Railroad paralleled development of steamboat commerce on the Ohio River and encouraged the view of railroads as feeders for river commerce. Events leading to the building of the Madison railroad began as early as the legislative session of 1831-1832 when, perhaps in response to the expansion of steamboat commerce, the state granted eight railroad charters. Authorized on February 2, 1832 the Madison, Indianapolis and Lafayette Railroad in four years as a private corporation made negligible progress.[54] In 1835 supporters of a Madison railroad, including Lanier, Jeremiah Sullivan, J. L. White, Milton Stapp, W. Lyle, and John Sheets saved the enterprise from an "ignominious death." The Republican and Banner exclaimed, "The railroad-fire burns in Madison and the steam is up!"[55] These men engaged "R. S. Smith, an experienced engineer from the Baltimore and Ohio Rail Road" to make a survey of a feasible route from Madison, and they persuaded the corporation to break ground for a terminal on a lot between Main and

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[52]Frederic L. Paxon, "The Railroads of the 'Old Northwest' Before the Civil War," Wisconsin Academy of Sciences, Arts, and Letters, XVII (1911), 261-62.

[53]Hunter, Steamboats on the Western Rivers, 481.

[54]General Laws of Indiana (1831-1832), 181-89.

[55]Madison Republican and Banner, January 1, 1835; January 8, 1835.

Mulberry streets in the northern part of town.[56] But private initiative could not raise the funds, locally or otherwise to finance construction of a railroad. The town did not have the resources to do it alone, and many farmers feared the competition from the interior that would result if the railroad were completed.[57]

In compliance with the acts of the state legislature Howard Stansbury in April 1835 began "an examination, survey, and estimate of a route for a rail road or turnpike, from Madison, by way of Indianapolis, to Lafayette." Stansbury completed his survey of the route in December 1835, reporting favorably on the railroad route that was eventually used between Madison and Indianapolis.[58] With the Internal Improvements Act of 1836, the state came to the rescue of Madison interests and assumed the burden of building a railroad "from Madison through Columbus, Indianapolis and Crawfordsville, to Lafayette."[59] The state let the first contracts for construction in September 1836 and work began soon afterward.[60] The most difficult section of the road lay immediately north of Madison where an ascent of 413 feet had to be made in less than 2 miles. Building of the road northeastward from the summit back of Madison and work on a 7,012 foot incline plane up the hill went on simultaneously. From 1836 to early 1843, when the state

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[56] Ibid., January 22, 1835.

[57] The Memoirs of Milton Stapp, typescript (Lilly Library, Indiana University, Bloomington), 25; Madison Republican and Banner, May 7, 1835.

[58] Indiana Documentary Journal (1835-1836), 22-27.

[59] General Laws of Indiana (1835-1836), 8.

[60] Madison Republican and Banner, September 28, 1836.

transferred control of the railroad to private investors, the sum of $1,624,291.93 was expended on construction.[61]

In February 1843, when the state transferred the 28 miles of completed railroad to private hands, it also paid for about one-half of the grading and bridging to Edinburg, 28 miles further; the ground for the depot in Madison; the work shops on the hill; two locomotives; and the cars necessary for the road then finished. The state had built the road over the most difficult and expensive portion of the route (Figure 1), but the legislature of 1842, having found "public works unprofitable and expensive, with no funds to complete them, and dull prospects of profit from them, if completed," passed an act providing for their extension by private companies. Under provisions of the act a company could be formed for the purpose of "Continuance of the construction of all or any part of the public works of this state" with a minimum of $10,000 in stock.[62] A group of primarily Madison citizens, headed by Lanier, A. W. Flint, Thomas L. Paine, and Nathan B. Palmer organized the Madison and Indianapolis Railroad Company and in April and May 1842 subscribed "about $80,000, mostly in land, at cash prices" for stock at $50.00 a share. The company began management of the road on February 20, 1843, but the proprietorship was dual with the state retaining ownership of the completed portion of the road and the company owning any future portions when finished.[63]

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[61]Madison and Indianapolis Railroad, First Annual Report [1843] (Indiana Division, Indiana State Library), 15. The Indiana Division of the Indiana State Library has Annual Reports of the Madison and Indianapolis Railroad for the years 1843 to 1857.

[62]General Laws of Indiana (1841-1842), 3.

[63]Madison Railroad, First Annual Report, 15-17.

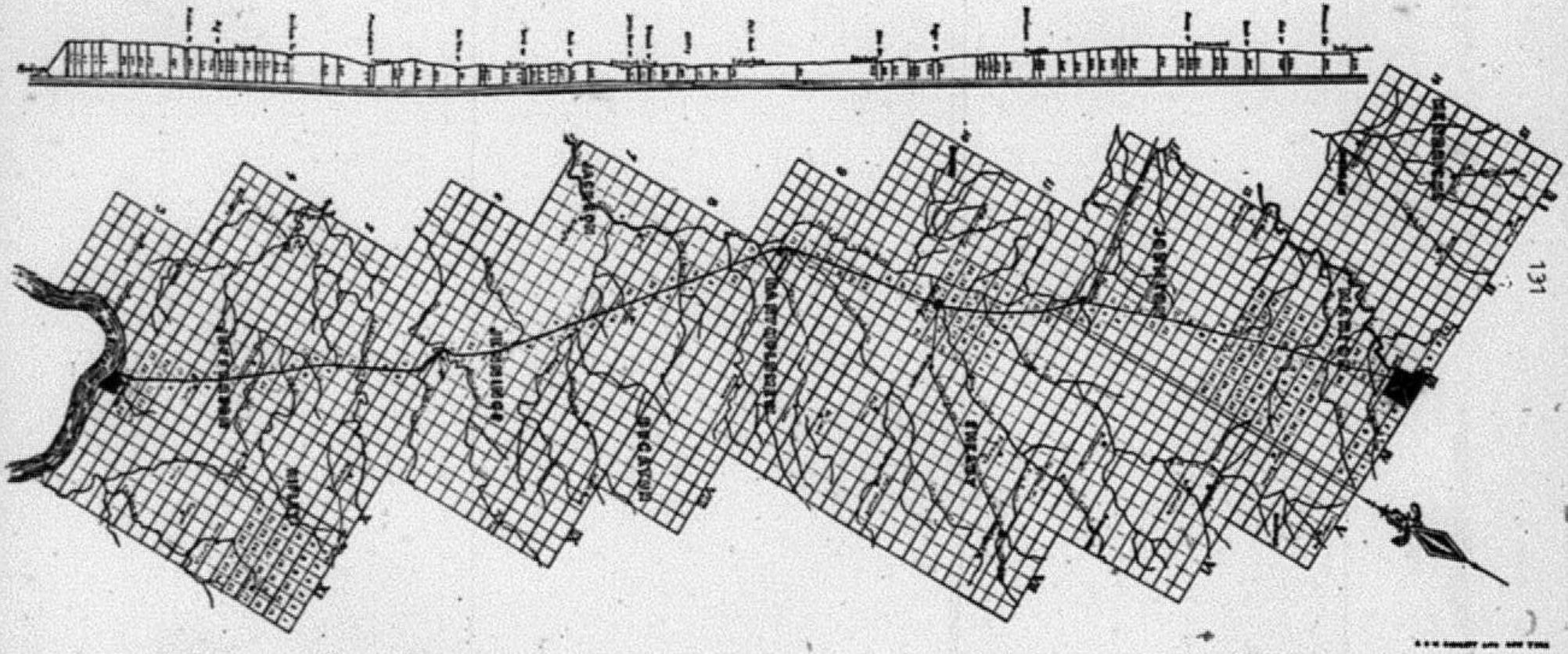

Figure 1. Route of the Madison and Indianapolis Railroad, 1850.

Source: Thomas A. Morris' Map (Indiana State Historical Society, Indiana State Library).

This relationship lasted until 1852, when the state sold out its interests at a sacrifice, and withdrew from any connection with the company.[64]

The cost of constructing the incline plane consumed a large portion of the money expended by the State. In 1837 the chief engineer for the state estimated its cost at $176,827 but because of the rise in cost of "provisions and labor," the estimate grew to $272,816 in 1839. By 1841 when the incline plane was completed, Thomas H. Blake, a member of the Internal Improvement Board reported its total cost as about $275,000.[65] Construction in 1837 employed an average force of 1,400 men on the first 15 miles under contract, a large number of whom probably worked on the plane. The ravine selected for the plane was irregular in its direction and formation, presenting several spurs projecting from the main hill, with depressions between them. To maintain the proper grade and at the same time preserve a straight line that would permit the use of stationary steam power, it was necessary to cut through the projecting spurs that were composed of almost solid rock. The middle or big cut required an excavation more than 117 feet in depth and about 1,150 feet in length, while the lower and upper cuts required excavations of 100 feet and 40 respectively. Gun powder was used to loosen the rock and hand labor cleared and hauled away the debris, which was used to form heavy embankments across intermediate ravines.[66]

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[64] The original agreement had been for the company to purchase the state's interest for $300,000 but the state finally settled in 1855 for $75,000 and $400 in attorney's fees. Twelfth Annual Report (1854), 9.

[65] Indiana Documentary Journal (1836-1837), 4; Ibid. (1839-1840), 97; Ibid. (1841-1842), 218.

[66] Ibid. (1837-1838), 11-12.

The state completed the incline plane in 1841. Its grade of 5.89 percent made it the steepest in the country.[67] The Weekly Courier described its first ascent by a locomotive in November 1841:

> The track being laid and in a condition to receive the cars, about 8 o'clock in the morning the locomotive came down the plain and proceeded up the river to the principal wharfs of the city. There it paused until every position where a man could stand, on the engine itself, on the tender, and on a burthen car attached to them, was entirely occupied. It then moved with great velocity to the plain, which it ascended with ease, and arrived at the depot in a little more than eleven minutes, from the vicinity of the wharf from which it started, a distance of about two miles and carrying between 80 and 100 passengers.[68]

Although a locomotive had ascended the incline plane, other locomotives were not regularly used to haul cars up the plane until 1848. Prior to that year the railroad used horses to draw cars to the summit one by one, where they were assembled into trains. Cars moving into Madison were allowed to descend by gravity and were accompanied by an attendant who operated a hand brake. This practice proved surprisingly safe although accidents did occur. In 1844 a wood car that had been allowed to descend too soon after a passenger car collided with the first car, killing four persons and leaving "some ten or twelve more or less dangerously wounded."[69] The use of locomotive power began in 1848, when a special engine, the Michael G. Bright, built by the Baldwin Locomotive Works and equipped with a cog-wheel device designed by Andrew Cathcart, master machinist for the railroad, was put into service. The cog-wheel on this locomotive worked

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[67]Elmer G. Sulzer, "America' Steepest Railroad," Trains (July, 1962), 34.

[68]Madison Weekly Courier, November 6, 1841.

[69]Madison Republican and Banner, March 30, 1844.

in a rack-tail placed in the center of the track and enabled the engine to draw up and let down "with perfect ease, a train weighing 150 tons."[70] After introduction of locomotive power on the plane, ascent replaced descent as the most dangerous part of the incline plane operation. In 1850 a freight train of ten cars broke loose from the locomotive, at the top of the plane and seven of the cars, jumping the track on the curve at the foot of the plane, plunged into the river. The three that stayed on the track crashed into cars standing on the track at the foot of West Street.[71]

The private company began its construction of the road "at a period of great depression" when many stockholders who had cheerfully subscribed land and produce, were unable to pay the smallest amount in money.[72] To complete the road to Columbus the directors were repeatedly compelled to advance their private funds and lend their personal credit to promote the progress of the work, or prevent its stopping altogether.[73] Early in 1845 stock sold at one-third its par value. "The small amounts of stock that have been sold," wrote Samuel Merrill, who had become president of the road in 1844, "were taken reluctantly, not as investments of money, but under a sense of duty that all who possessed the ability should contribute in a matter of such general interest."[74] Merrill complained bitterly to his wife in January 1846 that building a railroad "almost without money"

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[70]Madison Railroad, Fifth Annual Report (1847), 5.

[71]Madison Daily Courier, January 17, 1850.

[72]Madison Railroad, First Annual Report, 6.

[73]Madison Railroad, Second Annual Report (1844), 18.

[74]Madison Railroad, Third Annual Report (1845), 4-5.

was about as much as he could bear.[75]

Completion of the road to Columbus in 1844 severely taxed the finances of the road and the company needed money from outside the state to continue construction. Eastern capitalists assured the company that money could be obtained, if the legislature would change the general law under which the Madison and Indianapolis Railroad operated.[76] The state legislature, in January 1845, authorized the company to borrow money on its credit through the sale of bonds, and to open books for subscription and transfer of stock in any city in the United States.[77] These changes in the charter satisfied the demands of eastern investors and in July 1845, the Merchants' Bank in New York City lent $50,000 to the company.[78] This additional money did not ease the financial difficulties that continued to plague the road. In April 1846 Merrill wrote:

> My troubles before, I thought at the time sufficient but this doing a big business with limited means seems now the hardest of all. We must increase Machinery, keep up Repairs, and tend the Road, and then no allowance for failures in anything. We know so little of Rail Roads in the West and such extravagant expectations are entertained that our only resource is to scold back when they find fault. I do not like to <u>run away</u> but I should have very little objection to being turned out that they might see whether management by other hands would lead to better results. If we can borrow more money this Summer, the Road can be finished in the Winter, but if we cannot which now appears doubtful, there is great danger of a ship-wreck of our credit.[79]

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[75]Samuel Merrill to Jane Merrill, January 4, 1846, Merrill Papers (Indiana Historical Society, Indiana State Library).

[76]Madison Railroad, <u>First Annual Report</u>, 18.

[77]<u>General Laws of Indiana</u> (1844-1845), 41.

[78]Deed Record Book "J" (Recorder's Office, Bartholomew County Court House, Columbus, Indiana), 157-58.

[79]Samuel Merrill To David Merrill, April 26, 1846, Merrill Papers.

Contrary to Merrill's doubts, the company succeeded in obtaining another loan. Lanier, who acted as agent for the company, with the help of the brokerage firm of Winslow and Perkins, obtained in July 1846 another loan of $100,000 from the Merchants' Bank.[80] They loaned the money on the basis of mortgage bonds issued by the company in 1845 and 1846, in amounts of $50,000 and $100,000 respectively. The bonds were in denominations of $1,000 and bore an interest rate of 7 percent per annum. They were secured by the property of the railroad and convertible into stock, at par (20 shares of $50.00 par stock for each bond) at the option of the holder.[81] These were the first western railroad bonds sold in New York.[82] With the help of the $100,000 the railroad company completed the line to Indianapolis on October 1, 1847.

The steady growth in gross earnings from 1839 to 1852 shown in Table II indicates the increasing importance of the road in carrying passengers and freight to and from Madison. During these years the road earned somewhat more from the movement of freight to Madison from its tributary area than it did from the movement of freight from Madison to the hinterland. In 1845 almost $10,000 more was earned from inward freight than from outward, being $25,344.84 and $15,624.83 respectively.[83] In 1852 the road still made more on incoming than outgoing traffic ($141,521.30 and $129,180.59

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[80]Madison Republican and Banner, August 12, 1846.

[81]Deed Record Book "J," 157-58; Deed Record Book "K" (Recorder's Office, Bartholomew County Court House, Columbus, Indiana), 30-31.

[82]Obituary of R. H. Winslow, from American Railroad Journal (March 2, 1861), quoted in New York Times, March 6, 1861.

[83]Madison Railroad, Third Annual Report, 6.

Table II. Gross Passenger and Freight Receipts for the Madison and Indianapolis Railroad, 1839-1860.

Year	Gross Receipts	Year	Gross Receipts
1839	$ 4,035.39	1850	$296,700.73
1840	13,384.34	1851	391,742.01
1841	15,728.59	1852	516,414.52
1842	21,292.40	1853	441,159.73
1843	24,385.17	1854	343,711.66
1844	40,272.48	1855	286,146.82
1845	60,053.40	1856	270,317.66
1846	101,014.70	1857	212,644.40
1847	156,653.24	1858	206,414.16
1848	212,125.85	1859	200,654.44
1849	247,920.34	1860	230,563.48

Sources: Madison and Indianapolis Railroad, Annual Reports, 1843-1857 (Indiana Division, Indiana State Library); Indiana Documentary Journals; American Railroad Journal; Robert J. Elvin, Scrapbook relating to the Madison and Indianapolis Railroad (Indiana Division, Indiana State Library); Madison Weekly Courier; Madison Daily Courier.

respectively), but the difference was less pronounced.[84] There was a shift in 1853, when, for the first time, earnings for outward freight ($119,875.02) exceeded those for inward freight ($81,937.69).[85] The penetration of the Madison road's traffic area by competing railroads that began in 1853 (Chapter 3), corresponds directly to this shift in source of earnings and to the beginning of a general decline of profits. The railroad stopped reporting inward and outward freight earnings after 1853 but the general decline in gross earnings indicated in Table II shows the increasing effect that competitive roads had on the Madison and Indianapolis Railroad and the commerce of Madison. The importance

[84]Madison Railroad, Tenth Annual Report (1852), 9.

[85]Madison Railroad, Eleventh Annual Report (1853), 7.

of the road to Madison reached its height in 1852 and thereafter declined steadily.

In completing the road to Indianapolis the company had expended $628,992.77, which it obtained from sale of stock, investment of earnings, temporary loans, and money borrowed in New York City.[86] The hazards of building Indiana's first operating railroad limited the local investors willing to risk capital in the venture. In 1846 Merrill wrote, "many friends of the Road are abundantly liberal with their advice, but will give no other assistance."[87] Not until November 1847, when the road reached Indianapolis and the company issued new stock to relieve its debts and improve equipment, did a ready local market exist.[88] By then eastern interests also recognized its value. In 1849, John J. Palmer, president and trustee for the Merchants' Bank in New York, exercised the bank's option and converted its $150,000 in bonds into stock.[89] The hesitance or inability of many in Madison to buy stock limited ownership largely to those who originally saw merit in the railroad and the New York investors. In 1849 only three of the thirteen members of the Board of Directors of the Madison and Indianapolis Railroad lived in Madison--Lanier, Joseph G. Marshall, and John Brough--the others, including James M. Ray, lived elsewhere in the state, or in New York City, as did Richard H. Winslow.[90] Of the

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[86] Madison Railroad, Fifth Annual Report, 4.

[87] Madison Railroad, Third Annual Report, 9.

[88] Madison Railroad, Fifth Annual Report, 13.

[89] Deed Record Book "J," 157; Deed Record Book "K," 30.

[90] American Railroad Journal, XXII (Aug. 11, 1849), 503.

$1,650,000 in stock outstanding on January 1, 1852, 229 nonresidents of Madison, primarily investors who lived in New York, owned at least $1,174,500 worth.[91]

Since many stockholders lived in New York, when the earnings of the road permitted, large dividends flowed to those stockholders. Table III shows the net earnings of the Madison and Indianapolis Railroad for the

Table III. Net Earnings of the Madison and Indianapolis Railroad, 1845 to 1857.

Year	Net Earnings	Year	Net Earnings
		1851	$200,987.20
1845	$ 12,637.84	1852	268,095.50
1846	48,812.27	1853	141,503.87
1847	64,983.79	1854*	
1848	94,063.57	1855	107,617.66
1849	109,237.53	1856	103,821.14
1850	139,010.98	1857	70,858.35

*Not reported.

Source: Madison Railroad, Annual Reports, 1845-1857.

years 1845 to 1857. After 1847 when earnings were no longer used for construction, much, if not most of the company's profits went to the stockholders. President John Brough in 1851 complained of the "absolute necessity of providing a surplus fund from the earnings of the road," to meet the depreciation of the road. "If the earnings of a road while new, or but partially worn," he continued, "are all taken from it semi-annually, the dividends are no less encroachments upon the capital than if the stock

[91] Indiana Documentary Journal (1851-1852), 407; Madison and Indianapolis Railroad Company Stockholders, January 1st, 1851, on N. Y. Books (Railroad File, Jefferson County Library, Madison, Indiana).

itself were returned piecemeal to the stock-holders."[92] Brough's appeal had little effect; in 1851 out of the $200,987.20 net earnings of the company, $162,253.44 was paid out in dividends. In the best year of operation, 1852, the company retained a surplus of $102,595.50, but it also paid a ten percent dividend of $165,000.[93]

Net earnings declined significantly in 1853 and in July 1854, E. W. H. Ellis, who replaced Brough as president, suspended all payment of dividends "as long as there are repairs to make, or debts to liquidate."[94] The indebtedness, largely incurred by the attempt to build a new terminal at Madison, unprofitable investment in the Columbus and Shelbyville Branch Railroad, and the "extraordinary repairs" required for safety of the road, continued to grow, reaching $2,818,696 in 1855, and $2,984,516 in 1856.[95] In reviewing its condition in 1855, Ellis reported that the Madison road "from occupying the first position among Western Roads, from being crowded with business to its utmost capacity, from being a remunerative enterprise to its stockholders, had been reduced to the position of a road of an inferior class, had been stripped of its business by rivalship and competition, and hangs upon the hands of its owners as a property nearly worthless."[96]

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[92]Madison Railroad, Eighth Annual Report (1850), 13.

[93]Madison Railroad, Ninth Annual Report (1851), 11; Tenth Annual Report, 6.

[94]Railroad Record, II (Oct. 5, 1854), 537.

[95]Reports, Superintendent, Secretary, and of the Commissioners Appointed to Investigate the Affairs, Madison and Indianapolis Railroad Company, April 10, 1855, 353; American Railroad Journal, XXIX (April 26, 1856), 267.

[96]Reports, Superintendent, Secretary, 351.

The road struggled on with its heavy indebtedness until 1862 when it was sold out by the United States Marshall and bought by persons reported to be the Jeffersonville and Indianapolis Railroad Company. By then the road was much run down and the new owners had "very little disposition" to improve it.[97]

The great value of the Madison and Indianapolis Railroad in the building of Madison was not the wealth it brought to its local investors. Rather, its value lay in the commerce it carried from the river to its tributary area, and the agricultural produce, particularly from the central portion of the state, that it brought to Madison industries. "In the vicinity of the first 40 miles" from Madison, Merrill wrote in 1844, "at least two-thirds of the land is of a poor quality, and as yet most of the Farms are small, and the surplus produce quite limited."[98] Like the steamboat that joined Madison to the markets of the East and South, the railroad joined it to the central portion of the state, and opened it, for a few years at least, to that area's business.

The advent of the steamboat and the railroad dramatically altered transportation in the Old Northwest making it possible to move more goods

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[97]Mss. Credit Reporting Ledger of the Mercantile Agency, Indiana, Jefferson County, 1844-1889, Volume 50 (Baker Library, Harvard Business School, Boston), 104. Lewis Tappan founded the Mercantile Agency, one of the earliest and most important national credit rating agencies, in 1841. The agency employed credit reporters in Madison beginning in the late 1840s. The reports from Madison and elsewhere were copied into large ledger books by clerks in the New York office. Dun and Bradstreet, the successor of the Mercantile Agency, deposited these ledgers in Baker Library, Harvard University. Roy A. Foulke, The Sinews of American Commerce (New York, 1941), 275-379.

[98]Madison Railroad, Second Annual Report, 8.

and people in less time and at less cost than had previously been possible. Improvement in transport technology initially benefitted Madison more than any other Indiana city, for it was the first to combine the advantages of the steamboat and the railroad. The combination of the two brought the central portion of the state within a day's journey of the important economic centers of Cincinnati and Louisville, and incomparably closer to the marketing centers of the South and East than the state had ever been before.[99] The advantage to Madison proved only temporary for in 1853 the completion of the Lawrenceburg and Indianapolis Railroad reversed the flow of traffic in Madison's hinterland and brought the north central area of the state within six hours of the Queen City.[100] The opening of the Ohio and Mississippi Railroad in 1854 reduced this time still further by making possible uninterrupted rail connections between Indianapolis and Cincinnati. This road also brought Cincinnati and Louisville within six hours of each other, compared with seventeen hours by river.[101] Virtually all of Madison's hinterland stood as close to these major cities in time expended in travel as to Madison. Madison's raison d'etre had been as an emporium, a gateway to an undeveloped hinterland. For a brief moment advances in transportation opened the gate wide, allowing many of Madison's citizens to believe that "Nature has designed that it should command a larger portion of trade from the interior than any other point within the state limits."[102] Not nature but techonology gave Madison its "command"

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[99] American Railroad Journal, XXV (March 20, 1851), 189.

[100] Ibid., XXVI (Nov. 19, 1853), 747.

[101] Ibid., XXVII (July 8, 1854), 428.

[102] Madison Republican and Banner, January 1, 1835.

of trade, and what technology had given, it might also take away.